Karl J. Thomé-Kozmiensky
Stephanie Thiel

WASTE MANAGEMENT

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Waste-to-Energy



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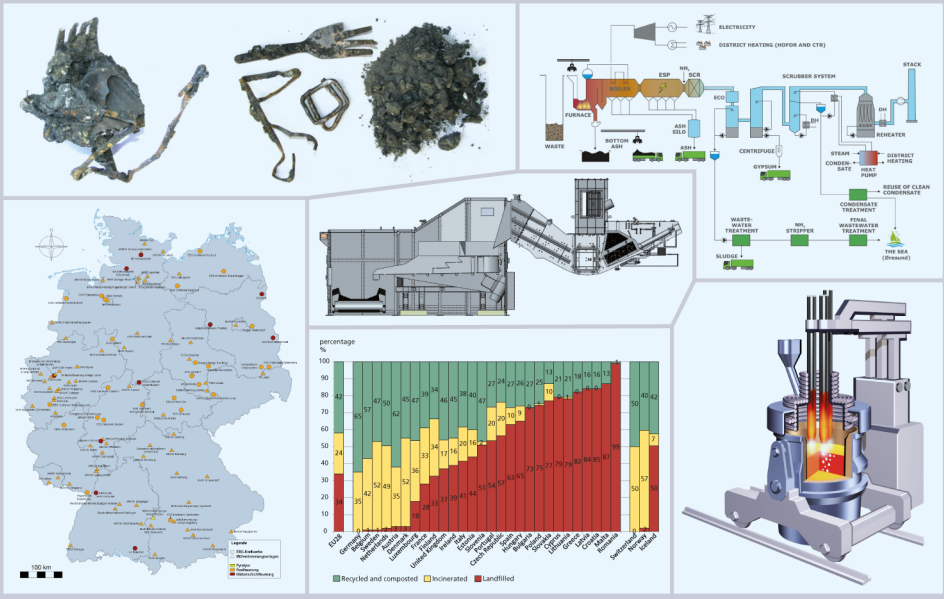
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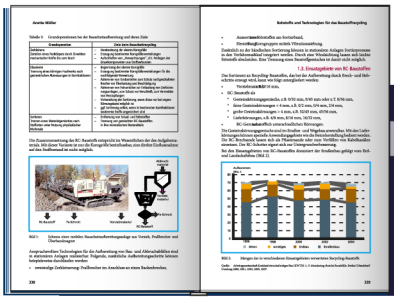
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E-Mail: tkverlag@vivis.de

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Incineration is a Process Step in Recycling Processes

Karl J. Thomé-Kozmiensky

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1. Recycling in the Act for Promoting Closed Substance Cycle Waste Management

The Act for Promoting Closed Substance Cycle Waste Management from 24th February 2012 as per article 2 paragraph 25 includes the following definition for recycling:

In the purposes of this Act, recycling means any recovery operation by which waste is processed into products, materials or substances whether for the original purpose or for other purpose. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are intended for the use as fuels or for backfilling.

In the general understanding, recycling describes the reduction of waste or waste constituents to the material cycle.

This means the overall process of transformation of waste to a new product, but not supplying it into a first treatment stage. The result of a first treatment stage, gives no information about the Act-compliant allocation to *recycling* or *other recovery*.

If the results of the first stage, are:

- Thirty percent of the input for further processing,
- Sixty percent of the input for further processing into solid recovered fuels,
- Ten percent of the input for disposal,

is the description of this first treatment stage as a recycling process not correct, because the biggest part of the input is supplied for other utilisation.

Even if the result of the partial process would be different, the allocation to one category or the other would be misleading.

The only guiding principle for a reality corresponding allocation, is viewing the result of the overall process, in which the material flows can be divided into different lines and within these lines into numerous sub-processes.

According to this result, the first process can be classified in different levels of the waste hierarchy – recycling or other recovery or disposal.

Of particular importance in both, the *Act for Promoting Closed Substance Cycle Waste Management* and the *Waste Framework Directive* is the exclusion from the definition of Recycling *energy recovery and the reprocessing into materials that are intended for use as fuels materials...*

It's hard to belive that the waste incineration process, with the objective of energy conversion and the production of fuels from waste, is not allowed to use the terminology *Recycling*, but are defined as *other energy recovery.*

This distinction is justified by the fact that these procedures – viewed on its own – are no worth preserving operations for compounds or items.

This reasoning is not really understandable, since in the energy from waste – as well as in the compound recycling – saves raw materials.

Impressive would be the argument for excluding energy from waste from the recycling process, if it would involve no *high-quality waste treatment*:

§ 8 paragraph 1, sentence 3 and 4:

In the embodiment of (.....) the recovery measure to be carried out is to seek a best-ensuring ***high quality recovery*** *for the protection of mankind and environment,. § 7 paragraph 4 is (.....) applied.*

§ 7 paragraph 4.:

The obligation of recovering waste is to achive, as far as technically possible and economically reasonable, especially if a market exists or can be created for a recovered compound or recovered energy.

The recovery of waste is also technically possible, if a pretreatment is required. The economic reasonableness is given, when associated with the recovery costs are not disproportionate to the costs that would occur for a garbage disposal.

In Act the definition of *high-quality* is not defined.

Alternatively, it could be assumed that a recovering process has high-quality, if the process is more environmentally friendly and more economical than alternatives and if by the recovering process compounds or materials are produced, which have the same quality as the original substance or the material of origin.

This could be the case if copper from the recycling process has the same quality as the copper used in the original product. The same would apply for a piece of plastic that was used for special packaging.

Incomprehensible would be the argument that a waste treatment process, in which the incineration process represents a integral part, is not a recycling process, although the recovery of a raw material or multiple raw materials is an integral part of the overall process.

For example metals and building materials should be recovered into the material cycle with a method where the first stage of the process is the incineration of waste and the second stage represents the mechanical preparation of the ashes, the overall process is an energy recovery process and also a recycling process.

In this process, the chemical energy bound in the waste is converted into heat and electricity and the inorganic components – metals and mineral materials – will be recovered.

The statement where the description of a thermal waste treatment, which is part of a process chain, is not a recycling process is hardly to understand especially if the process is designed specifically for the recovery of raw materials – e.g. metals.

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